

AMENDMENTS TO THE CLAIMS:

If entered, this listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Previously Presented) A method to form passivation openings that prevent protective tape residue in the manufacture of an integrated circuit device comprising:

providing a semiconductor substrate;

5 depositing a passivation layer overlying said semiconductor substrate;

depositing an organic photoresist layer overlying said passivation layer;

10 patterning said organic photoresist layer to expose said passivation layer in areas where said passivation openings are planned;

reflowing said organic photoresist layer to create gradually sloping sidewalls on said organic photoresist layer;

15 thereafter etching through said passivation layer not covered by organic photoresist layer to form said

passivation openings with gradually sloping sidewalls wherein said etching does not etch said organic photoresist layer;

20 stripping away said organic photoresist layer;
 applying a protective tape overlying said passivation layer and said passivation openings; and
 removing said protective tape wherein said gradually sloping sidewalls on said passivation openings allow said
25 protective tape to be completely removed without leaving adhesive residue in the manufacture of the integrated circuit device.

2. (Original) The method according to Claim 1 wherein said passivation layer comprises silicon nitride.

3. (Original) The method according to Claim 1 wherein said passivation layer is deposited to a thickness of between about 3,000 Angstroms and 15,000 Angstroms.

4. (Original) The method according to Claim 1 wherein said organic photoresist layer is deposited to a thickness of between about 10,000 Angstroms and 50,000 Angstroms.

5. (Original) The method according to Claim 1 wherein said step of reflowing said organic photoresist layer is performed at a temperature of between about 140 degrees C and 200 degrees C for a duration of between about 3 minutes and 15 minutes.

6. (Original) The method according to Claim 1 wherein said step of etching through said passivation layer comprises a dry plasma etching process using an etching chemistry comprising CF_4 and O_2 gases.

7. (Original) The method according to Claim 1 wherein said step of removing said protective tape is by use of a peeling tape.

8. (Original) The method according to Claim 1 further comprising grinding the backside of said semiconductor substrate after said step of applying said protective tape and prior to said step of removing said protective tape.

9. (Previously Presented) A method to form bonding pad openings that prevent tape residue in the manufacture of an integrated circuit device comprising:

providing a semiconductor substrate;

5 depositing a passivation layer overlying said
semiconductor substrate;
 depositing an organic photoresist layer overlying said
passivation layer;
 patterning said organic photoresist layer to expose
10 said passivation layer in areas where passivation openings
are planned;
 reflowing said organic photoresist layer to create
gradually sloping sidewalls on said organic photoresist
layer wherein said reflowing is performed at a temperature
15 of between 140 degrees C and 200 degrees C for a duration
of between 3 minutes and 15 minutes;
 etching through said passivation layer not covered by
said organic photoresist layer to form said passivation
openings with gradually sloping sidewalls;
20 stripping away said organic photoresist layer;
 applying a protective tape overlying said passivation
layer and said passivation openings; and
removing said protective tape wherein said gradually
sloping sidewalls on said passivation openings allow the
25 protective tape to be completely removed without leaving
adhesive residue.

10. (Original) The method according to Claim 9 wherein said passivation layer comprises silicon nitride.

11. (Original) The method according to Claim 9 wherein said passivation layer is deposited to a thickness of between about 3,000 Angstroms and 15,000 Angstroms.

12. (Original) The method according to Claim 9 wherein said organic photoresist layer is deposited to a thickness of between about 10,000 Angstroms and 50,000 Angstroms.

13. (Previously Presented) The method according to Claim 9 wherein said step of removing said protective tape is by use of a peeling tape.

14. (Original) The method according to Claim 9 wherein said step of etching through said passivation layer comprises a dry plasma etching process using an etching chemistry comprising CF_4 and O_2 gases.

15. (Original) The method according to Claim 9 further

comprising grinding the backside of said semiconductor substrate after said step of applying said protective tape and prior to said step of removing said protective tape.

16. (Previously Presented) A method to form bonding pad openings that prevent tape residue in the manufacture of an integrated circuit device comprising:

providing a semiconductor substrate;

5 providing a metal layer overlying said semiconductor substrate;

depositing a passivation layer overlying said metal layer;

10 depositing an organic photoresist layer overlying said passivation layer;

patterning said organic photoresist layer to expose said passivation layer in areas overlying said metal layer where said bonding pad openings are planned;

15 reflowing said organic photoresist layer to create gradually sloping sidewalls on said organic photoresist layer wherein said reflowing is performed at a temperature of between 140 degrees C and 200 degrees C for a duration of between 3 minutes and 15 minutes;

etching through said passivation layer not covered by

20 said passivation layer to form said bond pad openings with
gradually sloping sidewalls;

stripping away said organic photoresist layer;

applying a protective tape overlying said passivation
layer and said bond pad openings; and

25 removing said protective tape wherein said gradually
sloping sidewalls on said passivation openings allow the
protective tape to be completely removed without leaving
adhesive residue and wherein said removing is by use of a
peeling tape in the manufacture of the integrated circuit
30 device.

17. (Original) The method according to Claim 16 wherein
said passivation layer is deposited to a thickness of
between about 3,000 Angstroms and 15,000 Angstroms.

18. (Original) The method according to Claim 16 wherein
said organic photoresist layer is deposited to a thickness
of between about 10,000 Angstroms and 50,000 Angstroms.

19. (Previously Presented) The method according to Claim
16 further comprising grinding the backside of said
semiconductor substrate after said step of applying a

protective tape and prior to said step of removing said protective tape.

20. (Original) The method according to Claim 16 wherein said step of etching through said passivation layer comprises a dry plasma etching process using an etching chemistry comprising CF_4 and O_2 gases.